

Evaluation of the performance and knowledge of youth and middle-aged population of Zahedan about diabetes mellitus

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ABSTRACT

Background and Aim: Diabetes is one of the most common chronic metabolic diseases nowadays. Moreover, if no measurement is done to prevent, control, and treat it, there will be many problems for the community. This study is a descriptive cross-sectional study. Data were analyzed by SPSS software (version 16) using independent samples *t*-test, one-way ANOVA at the significant level of $\alpha = 0.05$. **Results:** The mean of knowledge score was 3.38 ± 12.49 of 20 and the mean score of performance was 3.85 ± 0.91 of 5, and both were at an average level. Independent samples *t*-test and one-way ANOVA analyzed the relationship between the mean score of knowledge and performance of the subjects with literacy, marital status, and gender; however, there was only a significant correlation between knowledge and literacy ($P = 0.001$). **Conclusion:** The mean score of knowledge and performance of the subjects was moderate regarding diabetes. Since there is a direct relationship between a person's knowledge of an issue and his or her insight and performance, it is hoped to raise the awareness about diabetes and improve individuals' performance through such methods as conducting health and medical education sessions on diabetes mellitus and imaging fatal outcomes on the individual.

KEY WORDS: Diabetes mellitus, Knowledge, Performance

INTRODUCTION

Diabetes mellitus (DM) is a major public health problem and one of the most common endocrine disorders.^[1] According to research, the rate of DM patients worldwide is estimated to rise from 366 million in 2011 to 522 million in 2030, a 2.7% growth/year.^[2] The global prevalence of DM among adults over the age of 18 increased from 4.7% in 1980 to 8.5% in 2014. The prevalence of DM has increased more rapidly in middle- and low-income countries.^[3] According to the report of the Centers for Disease Control, about 25 million people in the United States (US) have DM and 79 million are estimated to be prediabetic.^[4] In Iran, the prevalence of DM is expected to increase from 9.3 in 2011 to 13.1 in 2030. In Tehran, Type-2 diabetes annually affects more than 1% of the population over the age of 20.^[5] In 2014,

DM mortality was 4.9 million, more than 80% of which occurred in middle- and low-income countries, and by 2030, DM will be the seventh leading cause of death.^[6] DM is one of the most important chronic diseases that pose a risk for other dangerous diseases such as heart disease, stroke, hypertension, blindness, kidney diseases, and nervous system disease.^[4] In 2012, direct and indirect costs of diabetes in the US totaled more than \$245 billion.^[7] Given the cost of DM control and its complications, DM can be called one of the most significant health challenges of countries in the 21st century.^[8] Unless appropriate action is taken to prevent, control, and treat this disease, there will be numerous limitations and problems for patients and at-risk individuals.^[9] The development of Type-2 diabetes often causes chronic complications that decrease the quality of life (QoL) for patients and increase their morbidity and mortality. It also creates an economic burden on health systems.^[10,11] According to numerous evidence, DM in the new century is one of the health challenges in the Eastern Mediterranean region; the prevalence of DM in

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our country is also increasing, and this fact poses great responsibility for health practitioners.^[12] The important point is that the QoL of diabetic patients is poor in Iran, and with lack of self-care and awareness in this regard, the number of people affected will increase in the coming years and the QoL of these patients will decrease. Lack of awareness of DM is the first cause of poor care.^[12] Therefore, the greatest weapon to encounter this disease fundamentally is to raise people's awareness of the factors that contribute to it and prevent it.^[13] Peimani *et al.*, in a survey about physicians' knowledge, attitude, and performance regarding DM control and its complications in Tehran, showed that physicians' knowledge, attitude, and performance regarding DM were not appropriate.^[14] Qassemzadeh *et al.* also reported in their study that knowledge, attitude, and performance about gestational diabetes in pregnant mothers referred to the hospital were directly related to their performance regarding the disease.^[15] A low level of knowledge and awareness of people over 18 years of age living in Bushehr Port about DM and its complications have been studied in some studies,^[16] showing the importance of the level of awareness of people of all ages and conditions. It is clear that by increasing knowledge and attitude toward a particular disease, such as diabetes, which has become a major health concern today, it is possible for individuals to control misbehavior and promote proper behaviors, including dietary adjustment followed by control of the disease.^[17] Unfortunately, the number of people with DM is increasing each year and the age of the affected population is decreasing, largely due to the lack of awareness of the disease and its complications. Since education and educational interventions have a positive effect on increasing one's attitude and knowledge about a disease, and on the other hand, no study has been done to determine the status of knowledge and the performance of the general public regarding diabetes in Iran, including Sistan and Baluchestan, and given the importance and the role of knowledge and attitude of people regarding DM to help develop national health programs and effective health education approaches, the current study was conducted to evaluate the knowledge and performance of the youth and middle-aged population of Zahedan about DM in 2016.

MATERIALS AND METHODS

This study is a descriptive cross-sectional study. The study population consisted of all Iranian youth and middle-aged populations living in Zahedan. A multistage cluster sampling method was used. First, Zahedan was divided into five regions: North, South, East, West, and Central, and then from each region two health centers and a total of ten centers were randomly selected; 1000 eligible

samples were investigated. The data collection tool was a researcher-made questionnaire that was completed through direct referral to the homes by the researchers through direct interview with eligible subjects. The data collection tool was a researcher-made questionnaire whose content validity was confirmed by the opinions of seven faculty members. The questionnaire included demographic data (age, education, and job), knowledge with 20 items, and performance with five items about DM. Knowledge items included an individual's level of awareness of the causes, symptoms, and complications of the disease. In this section, each correct answer received one score and each wrong answer received zero score.

The minimum score of this section was set to "zero" and the maximum score was "20". The knowledge score range was 0–10 "poor," 10–17 "moderate," and 17–20 "good." Performance questions such as nutrition, exercise, and blood glucose control consisted of five questions that were scored with "yes" and "no" after completing the questionnaires. In this section, each correct answer received one score and each wrong answer received a zero. The performance score range 1–3 was considered "poor," 3–4 "moderate," and 5 "good." To confirm the reliability of the questionnaire, a pilot questionnaire was administered to 20 persons. The Cronbach's alpha coefficient for knowledge questions was 0.82 and 0.74 for performance questions. Finally, SPSS 16 software was used for data analysis. The significance level was considered at 0.05.

RESULTS

The mean age of the subjects was 11.05 ± 37.21 years; 57.1% were males and 42.9% females. The majority (80.9%) were married and literate (91.3%). The majority of men (41.33%) were self-employed and the majority of women (78.55%) were housewives. Other demographic characteristics are listed in Table 1. Regarding the level of awareness of the

Table 1: Sociodemographic profile of study participants

Variable	n (%)
Age (years)	
25–34	556 (55.6)
35–44	213 (21.3)
45–54	144 (14.4)
55–64	87 (8.7)
Sex	
Male	571 (57.1)
Female	429 (42.9)
Literacy	
Literate	913 (91.3)
Illiterate	87 (8.7)

factors contributing to the subjects' DM, the most prevalent factors (92.9%) were overconsumption of confectionery, obesity, and overweight (89.6%). Thirst (86.3%) and high urinary frequency (84.2%) were the most frequent warning symptoms of diabetes. Regarding knowledge about DM problems and complications, the most common knowledge was about foot problems (82.6%) and ocular diseases (82.9%). Other results are listed in Table 2. The mean score of knowledge was 3.38 ± 12.49 of 20. The subjects (22.9%) had poor knowledge of DM 74.2% moderate and 2.9% good. The mean score of knowledge of men and women was 3.47 ± 12.48 and 3.24 ± 12.51 , respectively, and independent samples *t*-test showed no significant relationship between knowledge and gender ($t = -0.150$; $df = 998$; $P = 0.881$). The mean score of knowledge in illiterate and literate subjects was 4.65 ± 10.98 and 3.25 ± 12.64 , respectively, and statistical analysis showed a significant relationship between literacy and awareness ($t = -4.468$; $df = 998$; $P = 0.001$). ANOVA test showed no significant relationship between knowledge and marital status ($f = 1.80$; $df = 3$; $P = 0.145$). The mean score of performance was 0.91 ± 3.85 of 5.

Regarding DM prevention, 25.7% of the subjects had poor performance, 66.6% were moderate, and 7.7% were good. The mean scores of performance of men and women were 0.89 ± 3.90 and 3.07 ± 9.93 , respectively, and independent samples *t*-test showed no significant relationship between performance and gender ($t = 1.897$; $df = 998$; $P = 0.058$). The mean score of performance in illiterate and illiterate subjects was 3.79 ± 1.00 and 0.90 ± 3.86 , respectively. Moreover, independent samples *t*-test showed no significant

relationship between literacy and performance ($t = -0.679$; $df = 998$; $P = 0.497$). ANOVA test showed no significant relationship between performance and marital status ($f = 3.132$; $df = 3$; $P = 0.095$). About 84.6% of the subjects had read or heard about diabetes. The most common source of information (36%) was radio and television; 20% was health centers. About 80.1% believed that diabetes was preventable.

DISCUSSION

DM is a chronic metabolic disease that, in addition to intrinsic factors, other factors such as environment, nutrition, stress, and people's knowledge of the disease are very involved.^[18,19] The rapid spread of this costly disease has made it a major public health concern today. According to research, the rate of diabetic patients worldwide is estimated to rise from 366 million in 2011 to 522 million in 2030, an increase of 2.7%/year.^[2] Proper education is one of the key points in promoting knowledge, attitude, and performance.^[20] Given the high and increasing prevalence of DM and the decrease in the incidence age of diabetes in the community and the impact of people's knowledge of DM on their performance, this study set to evaluate the knowledge and performance of youth and middle-aged population of Zahedan about DM. The results of this study showed that the mean score of knowledge and performance of the subjects under study were generally moderate. These results are in line with the findings of Qasimzadeh's study on 200 pregnant women, Mozafari on 106 dentists in Mashhad, Mazlumi Mahmoud Abad on 111 people at risk of Type-2 diabetes in Ardakan, and Goodarzi on 200 diabetic patients.^[15,18,21,22] Whereas the score of knowledge in the studies of Poorpir *et al.*, Javadi *et al.*, and Babaei *et al.*, respectively, conducted on 362 junior high school students in Birjand, 212 diabetic patients in Qazvin, and 719 in Bushehr, was reported to be low.^[16,20,23] These results are not in agreement with the results of a study conducted by Alidusti on students with Type-2 diabetes; performance scores were reported low in this study.^[24] The low score of knowledge in this study and studies above can be attributed to educational deficiencies and allocation of less time for obtaining general information by individuals. In the present study, knowledge score was significantly correlated with literacy level, which is in agreement with the results of the study of Poorpir *et al.* In this study, the knowledge score also increased among students with increasing in parents' education levels.^[23] As the level of education increases, knowledge and information level increases; as a result, the level of education has an impact on knowledge.

On the other hand, the performance score was not significantly correlated with literacy level, which is similar to the results of the study of Poorpir *et al.*

Table 2: Knowledge of participants regarding causes

Variable	n (%)
Cause	
Hereditary	795 (79.5)
Hypertension	383 (38.3)
Consumption of a lot of confectionary	929 (92.9)
Obesity and weight	896 (89.6)
Lack of mobility and exercise	848 (84.8)
Stress and anxiety	559 (55.9)
Symptoms	
Frequent urination	842 (84.2)
Frequent thirst	863 (86.3)
Frequent hunger	624 (62.4)
Fatigue and weakness	796 (79.6)
Leanness	275 (27.5)
Complications	
Eye problems	829 (82.9)
Heart problems	279 (27.9)
Kidney problems	544 (54.4)
Foot problems	866 (86.6)
Hypertension	400 (40.0)
Myocardial infarction	279 (27.9)
Cerebrovascular accident	225 (22.5)

and Alidosti and Hemati^[23,24] because performance is formed as a result of behavioral habits over many years and is difficult to modify as education level increases. Since most of the research subjects reported radio and television as their main sources of obtaining information, strengthening the radio and television programs and other mass media in order to empower people to take care of themselves is essential, hence the Islamic Republic of Iran Broadcasting should do more to raise people's knowledge. The second source of information was personnel of health centers. Given the critical role of health personnel and considering the fact that one of the key points in promoting knowledge, attitude, and performance is proper education, it is necessary to raise the level of knowledge and improve the attitude of health care providers by adopting new approaches and professional people and adopting policies to raise public knowledge.^[25]

CONCLUSION

The score of knowledge and performance of the subjects was moderate about DM. Since there is a direct relationship between one's knowledge of an issue and one's insight and performance, we may improve the level of knowledge about DM and subsequently improve individuals' performance by conducting health and medical education sessions about DM and imaging its fatal consequences on the individual.

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REFERENCES

- American Diabetes Association. Standards of medical care in diabetes--2010. *Diabetes Care* 2010;33 Suppl 1:S11-61.
- Whiting DR, Guariguata L, Weil C, Shaw J. IDF diabetes atlas: Global estimates of the prevalence of diabetes for 2011 and 2030. *Diabetes Res Clin Pract* 2011;94:311-21.
- Dagenais GR, Gerstein HC, Zhang X, McQueen M, Lear S, Lopez-Jaramillo P, *et al.* Variations in diabetes prevalence in low-, middle-, and high-income countries: Results from the prospective urban and rural epidemiological study. *Diabetes Care* 2016;39:780-7.
- Judith A, Cherie R, Kristine W. *Community and Public Health Nursing: Promoting the Public's Health*. 8th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2014. p. 761.
- Harati H, Hadaegh F, Saadat N, Azizi F. Population-based incidence of Type 2 diabetes and its associated risk factors: Results from a six-year cohort study in Iran. *BMC Public Health* 2009;9:186.
- Gautam A, Bhatta DN, Aryal UR. Diabetes related health knowledge, attitude and practice among diabetic patients in Nepal. *BMC Endocr Disord* 2015;15:25.
- Menke A, Casagrande S, Geiss L, Cowie CC. Prevalence of and trends in diabetes among adults in the United States, 1988-2012. *JAMA* 2015;314:1021-9.
- Costa LM, Vieira SE. Quality of life of adolescents with Type 1 diabetes. *Clinics (Sao Paulo)* 2015;70:173-9.
- Amini N, Bayat F, Rahimi M, Bekri G, Taheri G, Shojaezadeh D. Effect of education on knowledge, attitude and nutritional behavior of patients with Type 2 diabetes. *J Health Dev* 2012;1:306.
- Liu Z, Fu C, Wang W, Xu B. Research prevalence of chronic complications of Type 2 diabetes mellitus in outpatients a cross-sectional hospital based survey in urban China. *Health Qual Life Outcomes* 2010;8:62.
- Arashnia R, Roohi-Gilani K, Karimi-Sari H, Nikjoo N, Bahramifar A. Effect of pioglitazone therapy on high sensitive C-reactive protein and lipid profile in diabetic patients with renal transplantation; a randomize clinical trial. *J Nephropathol* 2015;4:48.
- Salehi F, Ahmadian L, Ansari R, Sabahi A. The role of information resources used by diabetic patients on the management of their disease. *Med J Mashhad Univ Med Sci* 2016;59:17-25.
- Steyl T. Undergraduate physiotherapy students' knowledge of diabetes mellitus: Implications for education. *S Afr J Physiother* 2011;67:9-14.
- Peimani M, Tabatabaei-Malazy O, Heshmat H, Sanjari M, Pajouhi M, Moghaddam SA. Knowledge, attitude and practice of physicians in the field of diabetes and its complications; A pilot study. *Iran J Diabetes Lipid Disord* 2010;9:357-64.
- Qassemzadeh SG, Dadmanesh M, Safari A, Ebrahimi S. The study on the knowledge, attitude and function of gestated mother's about gestational diabetes that referred to army Khanvadeh hospital from 2005 to 2006. *Ann Mil Health Sci Res* 2007;5:1326-30.
- Babae Q, Soltanian A, Khalkhaly H, Rabieian M, Bahreini F, Ardekani MA. People awareness on diabetes disease and complications in Bushehr, Iran using linears models. *Payavard Salamat* 2007;1:52-8.
- Bidi F, Hassanpour K, Ranjbarzadeh A, Kheradmand A. Effectiveness of educational program on knowledge, attitude, self care and life style in patients with Type II diabetes. *J Sabzevar Univ Med Sci* 2013;19:336-44.
- Mozafari PM, Pakfetrat A, Chaghmaghi MA, Aghideh NF. Evaluation of awareness of general dentists and dental specialists about dental management of pregnant and diabetic patients. *J Mashad Dent Sch* 2012;36:317-26.
- Azizi F, Hadaegh F. Ascension of diabetes and pre-diabetes in Iran. *Iran J Endocrinol Metab* 2015;17:1-3.
- Javadi A, Javadi M, Sarvghadi F. Knowledge, attitude and practice of diabetic patients referred to boo Ali Sina diabetes center Qazvin to diabetes. *J Birjand Univ Med Sci* 2004;11:46-51.
- Abad SM, Hajizadeh A, Aalaei M, Mirzaei-Alavijeh M, Afkhami A, Fattahi M. Status of preventive behaviors in individuals at risk for Type 2 diabetes: Application of the health belief model. *Iran J Diabetes Lipid Disord* 2012;11:544-50.
- Goudarzi M, Rabie A, Ebrahimzadeh I, Saeidipour B, Asghari M. The relationship between knowledge, attitude and practice efficacy in patients with Type 2 diabetes in Karaj. *Iran J Diabetes Lipid Disord* 2012;11:269-81.
- Poorpir Z, Sharifzade GR, Tabatabaeifard SF, Naseri M. Investigation the rate of knowledge, attitude and the performance of high school girl students of the second period in Birjand city about diabetes and related factors to it in the education year 2016-2017. *J Birjand Univ Med Sci* 2018;25:234-44.
- Alidosti M, Hemati Z. Educational intervention on effects' peers knowledge and behaviors of students with diabetes Type I. *Prev Care Nurs Midwifery J* 2013;3:12-21.
- Yazdani S, Akbarilakeh M. Which health cares are related to the family physician? A critical interpretive synthesis of literature. *Iran J Public Health* 2017;46:585-90.

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